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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/405,299	09/23/1999	RANDALL S. ALBERTE	CEA-005.01	9329

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FOLEY HOAG, LLP
PATENT GROUP, WORLD TRADE CENTER WEST
155 SEAPORT BLVD
BOSTON, MA 02110

EXAMINER	
YAMNITZKY, MARIE ROSE	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/405,299	ALBERTE ET AL.	
	Examiner	Art Unit	
	Marie R. Yamnitzky	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *34-58 and 65-103* is/are pending in the application.

4a) Of the above claim(s) *34-58,65-70,74 and 79-103* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *71-73 and 75-78* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *03312005*.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 08, 2004 has been entered.

2. Applicant's amendment received November 08, 2004 amends the specification and claims 71, 72 and 75.

Claims 34-58 and 65-103 are pending.

3. The objection to the amendment filed January 28, 2004 as introducing new matter, for reasons set forth in the Office action mailed May 05, 2004, is overcome by applicant's amendment received November 08, 2004. However, the amendment to overcome this objection reintroduces issues raised in the Office action mailed August 26, 2003 in an objection to the disclosure.

The objection to the disclosure for informalities, as set forth in the Office action mailed May 05, 2004, is overcome by applicant's amendment. A new objection to the disclosure is set forth later in this Office action for the issues reintroduced by the amendment.

As noted in the Advisory action mailed December 07, 2004, the provisional obviousness-type double patenting rejection over claims of copending Application No. 09/405,269 is overcome by the Terminal Disclaimer received November 08, 2004.

4. Claims 79-103 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made by original presentation. (Withdrawn method claims will be subject to consideration upon allowance of a product claim provided the conditions for rejoinder as set forth in MPEP 821.04 are met.)

5. The claims remain subject to the election of species. In the reply filed on May 14, 2001, applicant elected the species of a compound of general structure 1 where X represents –OH, Y represents O and Z represents an optionally substituted aryl, and elected the species of coating form wherein the coating is a liquid. Claims 71-73 and 75-78 continue to read on the elected species.

Claims 34-58, 65-70 and 74 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 14, 2001.

6. The disclosure is objected to because of the following informalities:

The meaning of the abbreviations PPCS, BPCS, TPPCS, BTCS is not given in the specification. The abbreviation PPCS is used in Fig. 2 and all four abbreviations are used in Fig. 3, but the specific compounds designated by these abbreviations are not clearly disclosed in the specification. It is not clear if any of these abbreviations corresponds to any of the compounds named in the paragraph bridging pages 2 and 3. The examiner notes that page 3, line 20

indicates that TPPC is an analog of zosteric acid, but the exact chemical structure of TPPC is not disclosed by way of chemical formula or name.

Appropriate correction is required.

7. Claims 71-73 and 75-78 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for specific coatings demonstrated by the examples to have anti-fouling capabilities as required by the present claims, does not reasonably provide enablement for a coating of the scope as claimed in present claims 71, 75 and dependents wherein the terms "plant surface" and "coating" encompass numerous structures/compositions, the term "anti-fouling" encompasses a variety of possible modes of action against numerous possible organisms, and the general structure for the compound as defined in the independent claims and some of the dependent claims encompasses numerous compounds. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

As taught on page 1 of the specification, there are more than 50,000 species of fungi, of which more than 10,000 species of fungi cause disease in plant.

As taught on page 5 of the specification, the exact mechanism of action is not known but studies indicate that the sulfate group of the compound plays a role.

As taught on page 9 of the specification, the term "coating" encompasses gas, vapor, liquid, paste, semi-solid or solid, examples of which include sprays, liquids, gases, vapors, gel, powders, waters, wetters, detergents and oils.

As taught on page 9 of the specification, an "effective amount" is an amount of antifouling compound that reduces the number of organisms that attach to a defined surface of a plant or plant component relative to the number that attach to an untreated surface.

As taught on page 11 of the specification, "plant" refers to any member of the plant kingdom, at any stage of its life cycle from seed to mature plant, and "plant component" refers to any portion or part of a plant.

As taught on page 11 of the specification, "plant pathogen" encompasses bacteria, virus, protist, algae or fungi that infect plants or plant components.

The compounds as defined in the present independent claims and some of the dependent claims encompass numerous compounds. (Present claim 73 is the most limited of the claims with respect to the identity of the anti-fouling compound. Structure 2 as defined in claim 73 encompasses 72 compounds.)

Accordingly, the present claims encompass any liquid, gas, vapor, gel, powder, etc. that comprises at least one compound selected from the numerous compounds encompassed by general structure 2 or 3 that, if applied to an unspecified member of the plant kingdom at an unspecified stage in its life cycle, would be capable of reducing the number of organisms attached to the plant or plant component relative to an untreated control, wherein the organisms to be reduced are selected from bacteria, viruses, protist, algae or fungi that infect plants or plant components.

The present specification provides data pertaining to the use of seven compounds: methyl sulfate, octyl sulfate, zosteric acid, PPCS, BPCS, TPPCS and BTCS. Methyl sulfate, octyl

sulfate and zosteric acid do not meet the limitations of the anti-fouling compound required for present claims 71-73 or 75-78. The exact identity of PPCS, BPCS, TPPCS and BTCS is not clear so it is not certain if any of these four compounds are within the scope of structure 2 and/or structure 3. The chemical names previously inserted in the specification for PPCS, BPCS, TPPCS and BTCS were subsequently deleted since there was insufficient evidence provided to demonstrate that one of ordinary skill in the art at the time of the invention would have understood the abbreviations to have the purported meanings. Based on applicant's arguments set forth in the third paragraph on page 15 of amendment received November 08, 2004, PPCS, BPCS and TPPCS are within the scope of compounds of structures 2 and 3, and BTCS is within the scope of a compound of structure 3. Presuming the presently argued meanings of these abbreviations are correct, it is not clear that the anti-fouling activity of the tested compounds that are within the scope of the present claims is representative of all coatings encompassed by present claims 71-73 or 75-78, or that the full scope of coatings encompassed by these claims can be determined without undue experimentations based on these examples.

As is apparent from the background discussion on page 1 of the specification, there is a lack of predictability in the art of anti-fouling materials for plants. The limited data presented in the specification are insufficient to demonstrate any predictability with respect to how each of the numerous compounds encompassed by general structures 2 and 3 would function in an anti-fouling capacity against any one of thousands of possible plant pathogens (fungi alone presenting over 10,000 possibilities) if used on any one of the numerous possibilities selected from

members of the plant kingdom at any stage in the life cycle. Accordingly, it is the examiner's position that it would require undue experimentation on the part of one of ordinary skill in the art at the time of the invention to make and use the invention commensurate in scope with the present claims.

8. Applicant's arguments filed November 08, 2004 have been fully considered, along with the telephonic discussions on January 10, 2005 and February 04, 2005, but they are not persuasive.

With respect to the lack of a definition for PPCS, BPCS, TPPCS and BTCS, applicant points to the list of particularly preferred compounds as disclosed in the paragraph bridging pages 2 and 3 of the specification, and argues that one of ordinary skill in the art (said by applicant to be someone having a PhD in organic chemistry) would be able to determine the meaning of the abbreviations from the list. Applicant argues that one would know that PPCS stands for 4-pentylphenyl chlorosulfate, TPPCS stands for 4-tert-pentylphenyl chlorosulfate (p-tert-amylphenyl chlorosulfate), BPCS stands for p-tert-butylphenyl chlorosulfate, and BTCS stands for p-tert-butyl chlorosulfate.

The examiner respectfully disagrees that one of ordinary skill in the art would readily recognize the abbreviations to have the meanings presently argued by applicant. For example, the list of preferred compounds includes two butylphenyl chlorosulfate compounds, one of which is p-tert and the other is p-iso. Presuming, for the sake of argument, that BPCS stand for one of the two butylphenyl chlorosulfate compounds disclosed as particularly preferred compounds, it is

not clear that one of ordinary skill in the art would understand BPCS to refer to the p-tert compound instead of the p-iso compound.

The examiner notes that p-tert-butyl chlorosulfate (said to be represented by the abbreviation BTCS) is not among the list of particularly preferred compounds. It is also not clear that the abbreviation BT would be recognized as referring to tert-butyl when the abbreviation TP (instead of PT) is said to refer to tert-pentyl.

The examiner also notes that applicant previously proposed that PPCS and TPPCS represented the same compound, whereas applicant now argues that PPCS stands for something other than previously proposed. While applicant's previous proposal was questionable, for the reasons set forth in the Office action mailed May 05, 2004, applicant's inconsistencies regarding the meaning of PPCS raises more doubt as to whether one of ordinary skill in the art would readily recognize the meaning of the abbreviations.

With respect to the enablement issue, although claims 71-73 have been narrowed with respect to the scope of compounds covered by general structure 2, and claims 75-78 have been narrowed with respect to the scope of compounds covered by general structure 3, general structures 2 and 3 as defined in the independent claims still cover a large variety of compounds, and general structure 2 as defined in claim 73 covers 72 compounds. The limited number of examples set forth in the specification are insufficient to demonstrate that the anti-fouling capabilities of the various compounds towards the numerous organisms which might foul a plant surface are sufficiently predictable such that undue experimentation would not be required to determine the scope of coatings encompassed by claims 71-73 and 75-78.

9. Miscellaneous:

The following is not an objection or rejection, it is merely brought to applicant's attention in case claims 71 and 75 have not been narrowed to the extent intended by applicant.

In the second line of the definition of Z in claims 71 and 75, "heteroaryl" has been deleted. However, Z may be optionally substituted $-(CH_2)_m-R_{80}$ in which m is in the range of 0 to 8, inclusive, and R_{80} is aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl. Compounds in which Z is heteroaryl are encompassed by compounds in which Z is $-(CH_2)_m-R_{80}$, m is zero and R_{80} is heterocyclyl.. A compound in which m is zero and R_{80} is polycyclyl also encompasses some compounds in which Z is heteroaryl. (Compounds in which Z is cycloalkenyl, or an optionally substituted aryl other than an optionally substituted alkylphenyl or arylphenyl, are also covered by present claims 71 and 75 when m is zero. Compounds in which Z is cycloalkyl are covered by the recitation of "cycloalkyl" in the first two lines of the definition of Z, as well as by $-(CH_2)_m-R_{80}$ when m is zero and R_{80} is cycloalkyl.)

10. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for Art Unit 1774 is (703) 872-9306 for all official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY
March 31, 2005

Marie R. Yamnitzky

MARIE YAMNITZKY
PRIMARY EXAMINER
1774